

Connector: Overview of check routine according to IEC 62852:2014

Documents to be considered

Data sheets of insulation materials, in particular concerning ULT, flammability class, RTI, etc.
Data sheets of current carrying materials
Constructional drawings
Proofs (certificates) of terminations, if applicable
Proofs (certificates) of wires, if applicable
Proofs (certificates) of cable glands acc. to IEC 62444, if applicable
Marking on product and on smallest packing unit
Installation manual

Group A Mechanical-tests (separate tests)

No.	Kind of test	Test conditions
A1	Measuring	Dimensions shall comply with the manufacturer's specification Creepage and clearance distances
A2	Durability of marking	Abrasion test
A3	Polarisation	Test force: 20 N or 1,5 times the insertion force, whichever is higher, but not higher than 80N
A4	Terminations	minimum test
A5	Contact retention in insert	Test with a specified test acc. to times the specified insertion force (mating)
A6	Cable gland	Test of cord anchorage, pull and torsion
A7	Mechanical strength impact	Dropping height: – 750 mm for specimens of mass ≤ 250 g, – 500 mm for specimens of mass > 250 g. Dropping cycles: 8 Positions in 45° steps, one cycle per position
A8	Mechanical strength at lower temperature	Test temperature: lower limiting temperature, storing duration: 5 h, force 1 Joule
A9	Insertion and withdrawal force	Only for connectors without coupling device or locking means, pull force 50N
A10	Effectiveness of connector coupling device	Only for connectors with coupling device or locking means, pull force 80N

Group B Service life tests (Test sequence)

No.	Kind of test	Test conditions
B1	Initial measurement	Measuring of contact resistance with 1 A
B2	Mechanical operation	50 times mating and unmating
B3	Final measurement	Measuring of contact resistance with 1 A, difference to B1 must be $\leq 50\%$ or $5m\Omega$. Impulse withstand test with 12 kV (1,2/50 μ s) or 16 kV (1,2/50 μ s) depending from the rated voltage.

Group C Service life tests (Test sequence)

No.	Kind of test	Test conditions
C1	Bending test	100 Bendings.
C2	Final measurement	Dielectric strength test with 2000V + (4x rated voltage) and visual examination

Group D Thermal tests (Test sequence)

No.	Kind of test	Test conditions
D1	Initial measurement	Measuring of contact resistance with 1 A
D2	Temperature rise test	Test with rated current at max. ambient temperature
D3	Dry heat	Storing 1000h at ULT
D4	Final measurement	Visual examination and measuring of contact resistance with 1 A, difference to D1 must be $\leq 50\%$ or $5m\Omega$.

Group E Climatic test group (Test sequence)

No.	Kind of test	Test conditions
E1	Initial measurement	Measuring of contact resistance with 1 A
E2	Thermal cycle test	Thermal cycle test 200 cycles -40°C to $+85^{\circ}\text{C}$
E3	Damp heat test	1000h at $+85^{\circ}\text{C}$ and 85%RH
E4	Dielectric strength	Impulse voltage test or dielectric strength test
E5	Protection against corrosion	Test with flowing mixed gas or according to ISO 6988
E6	Final measurement	Measuring of contact resistance with 1 A, difference to E1 must be $\leq 50\%$ or $5m\Omega$.

Group F Degree of protection (Test sequence)

No.	Kind of test	Test conditions
F1	Accessibility test	Test probe 11 acc. to IEC 61032 with 10N.
F2	IP-Test	IP-Protection acc. to IEC 60529, minimum IP55
F3	Dielectric strength	Test with 2000V + (4x rated voltage)

Group G Material tests (Test sequence)

No.	Kind of test	Test conditions
G1	UV-radiation resistance	Test acc. to method A of ISO 4892-2: 500 h at $60\text{W}/\text{m}^2$, 300-400nm, 65°C , 65%RH, cycles: 18 min spraying, 102min drying with Xenon-lamp
G2	Dielectric strength	Test with 2000V + (4x rated voltage)
G3	Flammability	Polymers serving as an enclosure HB, V-0, V-1, V-2 acc. to IEC 60695-11-10 Glow wire test with 650°C
G4	Flammability classification	Polymers serving to support live parts, HB, V-0, V-1, V-2 according to IEC 60695-11-10 Glow wire test with 750°C